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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/521,635

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K. Tommy Haraldsson

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2635

23713

7590

03/10/2009

GREENLEE WINNER AND SULLIVAN P C

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SUITE 200

BOULDER, CO 80301

EXAMINER

SANDERS, JAMES M

ART UNIT

PAPER NUMBER

1791

MAIL DATE

DELIVERY MODE

03/10/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/521,635	Applicant(s) HARALDSSON ET AL.	
	Examiner JAMES SANDERS	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 February 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 7-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 26-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/6/06, 6/20/06, 7/31/07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election of claims 1-6 and addition of new claims 26-29 in the reply filed on 2/2/09 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Specification

2. The disclosure is objected to because of the following informalities: pg 16, ln 1 of the Specification recites "can serve in least in" which appears to be a misstatement of the phrase "can serve at least in"; pg 16, ln 25 recites "after the photomask is removed are be transferred" and pg 19 lns 19-21 recite "Any excess sacrificial material deposited onto surfaces where attachment of the subsequent can be solvent polished before fabrication of the subsequent layer" which are incomprehensible; pg 23, ln 1 recites "one another, which case" which appears to be a misstatement of the phrase "one another, in which case"; pg 26, lns 8-9 recite "measurement sensor also added" which appears to be a misstatement of the phrase "measurement sensor was also added".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-2 and 4-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Ward et al ("UV Free-Radical Polymerization for Micropatterning Poly(ethylene glycol)-containing Films," Proceedings of the SPIE, Complex Mediums, 4097, 221-228, 30 July – 1 Aug. 2000, already of record).

5. For claims 1 and 2, Ward et al teach a method for making a polymeric layer on a substrate comprising the steps of: a) forming a layer of a liquid comprising a photopolymerizable polymer precursor between the substrate and an at least partially transparent element, a photomask; b) exposing the liquid layer to light through the photomask, thereby polymerizing one or more regions of the liquid layer to form a patterned polymeric layer (Fig. 4, pg 222 paragraph 5); and c) removing any unpolymerized region or regions of the liquid layer (pg 224 Ins 2-3).

For claims 4-6, Ward et al teach the liquid further comprises a photoinitiator and an iniferter (pg 222 paragraph 3).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ward et al, and further in view of Mancini et al (US 6387787).

Ward et al teach the invention as discussed above.

Ward et al do not teach the at least partially transparent element has three-dimensional features on the side of the element which contacts the liquid.

However, in a related field of endeavor pertaining to lithographic templates, Mancini et al teach the at least partially transparent element has three-dimensional features on the side of the element which contacts the liquid (cl 3 lns 27-39).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Mancini et al with those of Ward et al for the benefit of increased forming flexibility in producing the micro-electronic devices, micro electro mechanical devices and microfluidic devices as suggested by Mancini et al (cl 6 lns 39-46).

8. Claims 26-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ward et al, and further in view of Fudim (WO 88/06494, already of record).

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Ward et al teach the invention as discussed above, including that at least one of the polymeric layers is a patterned polymeric layer.

Ward et al do not teach removing the first at least partially transparent element; forming a second layer of a second liquid comprising a second polymer precursor at least in part between the first polymeric layer and a second at least partially transparent element; exposing the second liquid layer to light through the second at least partially transparent element, thereby polymerizing at least a region of the second liquid layer to form a second polymeric layer; and removing any unpolymerized region or regions of the second liquid layer.

However, in the same field of endeavor pertaining to production of three dimensional objects by photo-solidification, Fudim teaches removing the first at least partially transparent element (pg 5 lns 35-36); forming a second layer of a second liquid comprising a second polymer precursor at least in part (pg 10 lns 1-3) between the first polymeric layer and a second at least partially transparent element; exposing the second liquid layer to light through the second at least partially transparent element, thereby polymerizing at least a region of the second liquid layer to form a second polymeric layer; and removing any unpolymerized region or regions of the second liquid layer (pg 6 lns 1-10).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Fudim with those of Ward et al for the benefit of adding additional layers to enlarge a formed object as suggested by Fudim (pg 5 ln 35).

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9. Claims 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ward et al, further in view of Fudim, and further in view of Pomerantz et al (EP 0322257, already of record).

The previous combination teaches the invention as discussed above.

The previous combination does not teach filling one or more cavities in the previous polymeric layer with a sacrificial material before forming the layer of the subsequent liquid or removing excess sacrificial material from the surface of the previous polymeric layer before forming the layer of the subsequent liquid.

However, in a related field of endeavor pertaining to three dimensional modeling, Pomerantz et al teach filling one or more cavities in the previous polymeric layer with a sacrificial material before forming the layer of the subsequent liquid or removing excess sacrificial material from the surface of the previous polymeric layer before forming the layer of the subsequent liquid (Fig. 6, cl 13 ln 13 to cl 14 ln 5).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Pomerantz with those of Ward et al/Fudim for the benefit of enabling complex or hollow objects to be formed as suggested by Pomerantz et al (cl 7 lns 26-27).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAMES SANDERS whose telephone number is 571-270-7007. The examiner can normally be reached on Monday through Friday, 8 AM to 5 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Del Sole can be reached on 571-272-1130. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JMS

/Joseph S. Del Sole/

Supervisory Patent Examiner, Art Unit 1791